

Market Efficiency Effects of Regulation Fair Disclosure

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I. INTRODUCTION

The quality and disclosure of financial information by firms is a subject of growing concern. In view of the stunning collapse of Enron, there is proposed new regulation and pressure on the SEC to get tough on corporate reporting. In fact the SEC¹ is soon expected to initiate a Regulation FD (Fair Disclosure) case. In addition, the SEC announced in February that it was set to issue a number of proposals that would result in a greater amount of information being available to investors on a timelier basis.² It is in this backdrop that the impact of the existing Regulation FD is being analyzed.

Regulation FD imposes new requirements on the voluntary disclosure practices of corporations. The Regulation requires corporations not to disclose news about significant business developments to a select few. Instead, they should disclose any material information publicly to all market participants using methods like public filing with the SEC, press statements, webcasts and other methods. Public disclosure must take place simultaneously for intentional disclosures or promptly³ for non-intentional disclosures.

I.i Background and Scope

The SEC adopted Regulation FD on 23rd October 2000 out of concerns about *selective disclosure* - corporations providing material, non-public information to certain persons, typically security analysts and institutional investors. The arguments against selective disclosure are: (a) *Investor confidence*: a privileged few gain significant informational advantage and are able to trade on that information at the expense of the other market participants. It is felt that the practice of selective disclosure would cause investors to lose confidence in the fairness of the markets, its

¹ 'SEC seen bringing pro forma, Reg FD cases soon', Reuters, 31Dec2001

² 'SEC Plans New Disclosure Rules To Speed Corporate Filings', Dow Jones News Wire, 5Mar2002

³ Promptly is defined as soon as reasonably possible with the outer bound being the later of 24 hours or the commencement of next day's trading on NYSE.

economic impact being similar to that of insider trading. (b) *Analyst bias*: corporate management could use material information to gain favors from analysts and investors. Analysts feel pressured to write favorable reports in order to have continued access to selectively disclosed material information.

In order to ensure that Regulation FD does not have a chilling effect on the disclosure of information by corporations, its scope is restricted to communication with security market professionals⁴. A person is liable under this Regulation when he is guilty of knowing or is reckless in not knowing that the information selectively disclosed is both material and non-public.

II. EFFECTS OF REGULATION FD

The effects of the Regulation FD remain controversial and led to considerable debate in the business press. The supporters argue that the Regulation makes the markets efficient by increasing the amount of information available to the public. Critics however argue that companies now disclose less in terms of quantity and quality of information to both analysts⁵ and the market in general. This they believe has led to increased market volatility⁶ due to poorer dissemination of information. Thus in the 18 months since its implementation there still remains a divergence of views on whether the Regulation has changed the market for the better, though the majority belief is that the Regulation has lead to an increase in the quantity of information.

⁴ This includes broker-dealers, investment advisors, investment companies/hedge funds; and to holders of securities under circumstances where it is foreseeable that the holders may trade on the basis of the information. See Final Rule: Selective Disclosure and Insider Trading for details.

⁵ Analysts still continue to argue that the quality of substantive information has decreased due to the regulation. The latest Association for Investment and Management Research (AIMR) survey of US members, 18th Oct 2001, has between 43-54% of respondents stating that specific types of information are less available as compared to 5-16% stating that these types are more available.

⁶ 'What Hath Regulation FD Wrought?' , Business 2.0, 24May2001. Critics argue that companies are hamstrung by what they can and cannot say – thus all investors are equally baffled leading to more volatility.

There is significant anecdotal evidence for increase in *quantity* of information in the form of companies regularly offering guidance on their earnings and investors being able to hear practically all the conference calls over the internet. A recent survey of CFOs⁷ showed that 43% of respondents believe that Regulation FD has increased disclosure of public information while 26% say that it has impeded it.

In terms of the *market impact*, most of the information available is in the form of survey results. While there is general belief that the Regulation has led to a more ‘level playing field’, its impact in terms of quality of information to the public continues to remain controversial. A PricewaterhouseCoopers⁸ survey has 90% of the respondents stating that Regulation FD should be continued, however the same survey has only 29% noting a higher quality of reporting (4% lower quality).

The few academic studies that have been done have yielded mixed results. Heflin, Subramanyam and Zhang (2001) have found that after the implementation of Regulation FD there are (a) lower return volatility around earnings announcements; (b) some improvement in the speed with which pre announcement earnings price converges to its post announcement level; (c) no reliable evidence of change in various aspects of analysts forecast bias, accuracy, and dispersion; and (d) increase in the quantity of the firms’ voluntary forward looking disclosures. Overall they conclude that there is no evidence to support the critics that public information regarding corporate earnings available to capital markets have deteriorated. The result of a paper by Straser (2001) suggests that while the Regulation is successful in increasing the quantity of

⁷ ‘Making Peace with Reg FD’, Institutional Investor, Dec 2001. Results of CFO forum, a quarterly survey of an universe of 1,600 CFOs.

⁸ PricewaterhouseCoopers, Management Barometer, 17th Oct 2001. 101 CFOs and Managing Directors were interviewed in 2Q01.

publicly available information, it does not have any significant impact on the quality of that information.

II.i Research Questions

In the face of the increased focus on corporate disclosure policies, this paper looks at the historical impact of Regulation FD both from a micro perspective on companies' disclosure policies and from a macro perspective on the efficiency of the financial markets. Specifically the paper takes (a) a descriptive look at the quantity and methods of disclosures and the incremental information available to the market, and (b) tests historical data to see if the Regulation has led to any measurable improvement in the efficiency of the market in terms of reduced volatility or less excess returns following earnings announcements.

III. DESCRIPTIVE STUDY OF DISCLOSURES

III.1 Methodology of Disclosures

The regulation has caused companies to alter their disclosure practices. Following the Regulation there are two methods of public disclosure: (a) By furnishing or filing⁹ with the SEC a Form 8-K disclosing the information. (b) By disseminating the information through *other methods* of disclosure like press releases, conferences – either public, telephonic or webcast.

III.2 Increase in Quantity of Disclosures

Companies are increasingly providing fully accessible, non-exclusionary Webcast or telephonic conference as a means to achieve real-time, full and fair disclosure. There is a lot of secondary evidence that points to a significant increase in disclosure using methods like

⁹ Filing will subject the issuer to liability under Section 18 of the Exchange Act and incorporation into issuer's Securities Act registration statements and liability under Section 11 of Securities Act.

webcasting.¹⁰ While *other methods* has emerged as more important for disclosing Regulation FD information, a lot of companies follow a combination of Form 8-K and *other methods*.

III.3 Evidence from S&P100 Companies – Incremental Information

Form 8-K filings remain the most straightforward disclosure option. In order to look at the nature of incremental disclosure by companies, disclosures furnished under Item 9 for the Form 8-K have been looked at using data available on SEC's EDGAR database. Disclosures filed under Item 5 of Form 8-K were available to investors prior to Regulation FD and hence not considered incremental in nature. Data about disclosures using *other methods* are difficult to track without using company surveys and have been left out for the purposes of this study.

The S&P100 companies¹¹ have been analyzed to study their incremental filings. A database of their Regulation FD releases under Item 9 of Form 8-K for the year 2001 has been compiled from the SEC's EDGAR database. The data shows *a huge variation* in the number of Regulation FD disclosures that companies have reported under this method. There were 109 reports under Item 9 of Form 8-K ranging from zero to 10 as detailed in Appendix I.

The evidence from the S&P100 companies seems to indicate limited incremental reporting by way of furnishing under Form 8-K. The reasons include that companies prefer *other methods* as seen from secondary evidence and they have not significantly changed disclosure practices. In addition, there is *no observable trend in terms of the sector or industry group* and the number of reporting under Item 9 of Form 8-K.

The nature of the reporting are predominantly *earnings information* (73%) be it disclosure to analysts being reported or earnings expectations/guidance being conveyed to the public as listed in Table I. The other significant reason for reporting are M&A or change in

¹⁰ Special Study: Regulation FD Revisited, by the SEC notes that according to a wire service representative the

assets (14%). Of the 100 companies studied only one (Williams Cos.) has made an unintentional disclosure that they subsequently disclosed using Form 8-K.

Table I: S&P 100 Index - Type of Reporting in Form 8-K Under Item 9

Release type	%(2001)
(1) Earnings information	73%
(3) Mergers, acquisitions, tender offers, joint ventures, or changes in assets	14%
(4) New products or discoveries, or developments regarding customers or suppliers	3%
(5) Changes in control or in management	0%
(6) Change in auditors or other reporting related issues.	3%
(7) Events regarding the issuer's securities	7%
(8) Bankruptcies or receiverships.	0%

Significantly, the content of the disclosures indicates that Regulation FD is important to *allay market concerns during periods of market crisis*. Many companies made disclosures regarding the impact of Sep11th on their operations. Again number of companies quantified the impact of the collapse of Enron on their operations in their Regulation FD disclosures.

IV. EVENT STUDY FOR MARKET IMPACT ON ADR'S

The market impact of Regulation FD – whether it has led to a reduction in volatility or less excess returns following earnings announcements has been studied. The method used has been to look at foreign private issuers¹² who are excluded from Regulation FD - hence these disclosure rules do not apply to ADRs¹³. While the financial information disclosure practices by ADRs remain unchanged, the underlying US market has been impacted by the Regulation.

The excess returns on ADRs during earnings announcements have been calculated to see if there is any significant divergence during the period after the implementation of Regulation

number of corporate webcasts on its services increased from 3,000 in 1Oct2000 to 11,000 in 23Apr2001.

¹¹ http://www.spglobal.com/indexmain100_data.html

¹² As defined in Rule 405 of Securities Act

FD. If the market has indeed become more efficient there should be a shift in the distribution of excess returns on ADR stocks towards increased volatility and increased returns. The S&P 500 index has been chosen as a proxy for the market of US stocks.

The a priori hypothesis being that Regulation FD has had no effect on the market (S&P 500) and there is no divergence in ADRs returns or volatility in the period before and after the implementation of Regulation FD.

IV.1 Sample Selection

There are around 511 ADR stocks trading on the NYSE, NASDAQ and AMEX stock exchanges. A sample of 70 of these ADR stocks have been selected using the Citibank ADR database based on the ADRs being active on the US stock exchange for more than 20 months and having done a capital raising event of more than \$250 million. See Appendix II for the list of ADRs selected. The stocks price data was obtained from the Yahoo! Finance daily closing stock price data sets. Daily stock price data going upto 24 months (minimum 20 months) has been obtained for all the ADR stocks.

IV.2 Excess Returns Calculation

$E_i = R_i - \beta * R_m$ Excess Returns (E_i) is defined as the stock returns adjusted for risk and the market i.e. daily stock return less expected return. The expected return from the stock is $\beta * (\text{daily return on market})$.

Where β The regression Beta obtained from finding the slope of the regression between market returns and the excess returns over the two-year period.

R_i Daily return on the stock

R_m Daily return on the market (S&P500)

¹³ ADRs are excluded from Regulation FD since they are an offering of the type described in Rule 415(a)(1)(i)-(vi) of Securities Act

IV.3 Event Date Selection

Two events dates have been chosen – Event I in 2001 after the Regulation has impacted the market and Event II in 2000 when the Regulation has not impacted the market. Where available, event dates are the quarterly/annual interim results dates as per the press release report date (Data from text of press releases available on Thomson Financial). Alternatively where release reports are not dated, probable release dates have been obtained using the receipt date of the report by Thomson Financial or else the dates for filing annual reports (Form 20-F)¹⁴ with SEC. Where no information was available on SEC/Thomson Financial databases regarding quarterly/annual interim results date, the release dates have been obtained from press releases from Proquest news search or directly from the company website.

Excess returns for 11 days (5 days before and 5 days after) have been calculated for every event. A large event window has been taken given that for ADR stocks information takes longer to get assimilated into the stock data. Data for the excess returns are listed in Appendix III.

IV.4 Volatility Analysis

The first assumption tested is whether there has been any change in the volatility of the market. This has been done by looking at whether there has been any *significant change in the variance of the market* following the implementation of the Regulation.¹⁵

I have tested whether the sample of excess returns (Event I and Event II) have been taken from two distributions that have equal variance. Descriptive statistics for both Bartlett's test and Levene's test has been computed. While both these tests check for unequal variance, Bartlett's test is valid when the data comes from normal distributions. Bartlett's test is thus not robust to departures from normality. Given the box plot of the data, and the known properties of stock

¹⁴ This is an integrated form used both as a registration statement for purposes of registering securities of qualified foreign private issuers under Section 12 or as an annual report under Section 13(a) or 15(d) of the '34 Act.

markets, Levene's test¹⁶ that assumes that data come from continuous, but not necessarily normal distributions is more appropriate. The raw data has been updated for outliers to result in 59 data points.

At a 95% level of significance I find *no evidence that the variances of the two samples are different*. See Appendix IV for descriptive statistics and graphs. Thus I conclude that there is no significant statistically observable change in volatility in the market in the 2001 due to Regulation FD.

IV.5 Difference in Means

Next by doing an event study I test to see if there is an increase in excess returns for earnings announcements for ADR stocks.

Given that the two samples are not independent, since data are obtained over two different time periods, *a paired-sample method* has been used to look at the difference in means¹⁷. See Appendix V for descriptive statistics and graphs. The results of the paired t-test indicate that there is no statistically significant movement in the means over the two periods. Thus I find *no evidence to suggest that the excess returns on ADRs have increased* over the period following the implementation of the Regulation FD.

V. SUMMARY

The report first examines disclosure practices and concludes that the Regulation has led to an increase in quantity of disclosures. By studying Form 8-K disclosures for S&P100 companies, I find no observable pattern in terms of the types of firms who are making the most

¹⁵ The null hypothesis of equal variances versus the alternative of not all variances being equal has been tested.

¹⁶ The computational method for Levene's Test considers the distances of the observations from their sample median rather than their sample mean. Using the sample median rather than the sample mean makes the test more robust for smaller samples.

incremental disclosures under the Regulation. Most of the incremental information that is available is earnings information that was previously selectively disclosed only to analysts. Making disclosures under the Regulation has proved to be a useful forum for companies to allay market concerns during periods of crisis – September 11th/Enron.

Next by studying variances in the distribution of excess returns on ADR stocks, I find that after more than a year, Regulation FD has failed to live up to the dire forecasts of its critics. Stock market volatility has not increased, as predicted, due to this Regulation. By looking at the excess returns during the event period there is no evidence that the market has become more efficient as hoped by the advocates of the rule.

There seems to be anecdotal evidence of the market being fairer, but no measurable impact on the markets. Either more time or a stronger regulation is needed to impact the markets. Regulation FD targets only “selective disclosure”. In order to significantly improve the market I believe what it also needed is a system of “current disclosure”. As Chairman Harvey Pitt¹⁸ notes, investors need current information, not just periodic disclosures, along with clear requirements for public companies to make affirmative disclosures of, and to provide updates to, unquestionably material information in real time.

¹⁷ We have tested the null hypothesis that there is a difference in means at a 95% level of significance.

¹⁸ Chairman Harvey L. Pitt. "Op-Ed" for the Wall Street Journal, Dec 11, 2001

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- V Straser. Nov 2001. The Impact of Regulation Fair Disclosure on Information Asymmetry
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- B. Caramalouis-Cotelli, L. Gardiol, R. Gibson-Asner and N. S. Tuchschnid. 1999. Are Investors Sensitive to the Quality and the Disclosure of Financial Statements? *European Finance Review* 3: 131-159

Table I: S&P 100 Index - Type of Reporting in Form 8-K Under Section 9

Release type	Number for year 2001	%
(1) Earnings information - release / proforma numbers. Disclosure to analysts on expected results and outlook.	44	40%
(2) Earnings information - expectation / guidance. Projections for the future.	36	33%
(3) Mergers, acquisitions, tender offers, joint ventures, or changes in assets	15	14%
(4) New products or discoveries, or developments regarding customers or suppliers	3	3%
(5) Changes in control or in management		0%
(6) Change in auditors or auditor notification that the issuer may no longer rely on an auditor's audit report. Other reporting related issues.	3	3%
(7) Events regarding the issuer's securities -- e.g. defaults on senior securities, calls of securities for redemption, repurchase plans, stock splits or changes in dividends, changes to the rights of security holders, public or private sales of additional securities	8	7%
(8) Bankruptcies or receiverships.	0	0%
	109	

Note: The classification is done by reading through the text of the filing. In some cases the filings contain more than one type, but have been recorded under what was considered as the primary release type.

Appendix I: S&P 100 Index - Number of Reportings in Form 8-K Under Section 9										Sec 9 Form 8-K
Ticker	Stock Name	Sector	Sector Name	Industry	Industry Group Name	Industry Code	Industry Name	Sub Ind Code	Sub Ind Name	Reporting
1 AES	AES Corp.	55	Utilities	5510	Utilities	551010	Electric Utilities	55101010	Electric Utilities	4
2 AOL	AOL Time Warner Inc.	25	Consumer Discretionary	2540	Media	254010	Media	25401030	Movies & Entertainment	
3 T	AT&T Corp.	50	Telecommunication Services	5010	Telecommunication Services	501010	Diversified Telecommunication Services	50101020	Integrated Telecommunication Services	
4 AA	Alcoa Inc.	15	Materials	1510	Materials	151040	Metals & Mining	15104010	Aluminum	
5 ATI	Allegheny Technologies Inc.	15	Materials	1510	Materials	151040	Metals & Mining	15104060	Steel	
6 AEP	American Electric Power	55	Utilities	5510	Utilities	551010	Electric Utilities	55101010	Electric Utilities	
7 AXP	American Express	40	Financials	4030	Diversified Financials	403010	Diversified Financials	40301020	Diversified Financial Services	4
8 AIG	American Intl. Group	40	Financials	4030	Insurance	403010	Insurance	40301030	Multi-Line Insurance	2
9 AMGN	Amgen	35	Health Care	3520	Pharmaceuticals & Biotechnology	352010	Biotechnology	35201010	Biotechnology	
10 BUD	Anheuser-Busch	30	Consumer Staples	3020	Food Beverage & Tobacco	302010	Beverages	30201010	Brewers	
11 AVP	Avon Products	30	Consumer Staples	3030	Household & Personal Products	303020	Personal Products	30302010	Personal Products	1
12 BHI	Baker Hughes	10	Energy	1010	Energy	101010	Energy Equipment & Services	10101020	Oil & Gas Equipment & Services	
13 ONE	Bank One Corp.	40	Financials	4010	Banks	401010	Banks	40101010	Banks	
14 BAC	Bank of America Corp.	40	Financials	4010	Banks	401010	Banks	40101010	Banks	4
15 BAX	Baxter International Inc.	35	Health Care	3510	Health Care Equipment & Supplies	351010	Health Care Equipment & Supplies	35101010	Health Care Equipment	
16 BDK	Black & Decker Corp.	25	Consumer Discretionary	2520	Consumer Durables & Apparel	252010	Household Durables	25201040	Household Appliances	
17 BA	Boeing Company	20	Industrials	2010	Capital Goods	201010	Aerospace & Defense	20101010	Aerospace & Defense	2
18 BCC	Boise Cascade	15	Materials	1510	Materials	151060	Paper & Forest Products	15106020	Paper Products	
19 BMY	Bristol-Myers Squibb	35	Health Care	3520	Pharmaceuticals & Biotechnology	352020	Pharmaceuticals	35202010	Pharmaceuticals	
20 BNI	Burlington Northern Santa Fe C	20	Industrials	2030	Transportation	203040	Road & Rail	20304010	Railroads	
21 CI	CIGNA Corp.	35	Health Care	3510	Health Care Equipment & Services	351020	Health Care Providers & Services	35102030	Managed Health Care	7
22 CPB	Campbell Soup	30	Consumer Staples	3020	Food Beverage & Tobacco	302020	Food Products	30202030	Packaged Foods	
23 CSCO	Cisco Systems	45	Information Technology	4520	Technology Hardware & Equipment	452010	Communications Equipment	45201010	Networking Equipment	
24 C	Citigroup Inc.	40	Financials	4030	Diversified Financials	403010	Diversified Financials	40301020	Diversified Financial Services	
25 CCU	Clear Channel Communications	25	Consumer Discretionary	2540	Media	254010	Media	25401020	Broadcasting & Cable TV	
26 KO	Coca Cola Co.	30	Consumer Staples	3020	Food Beverage & Tobacco	302010	Beverages	30201030	Soft Drinks	
27 CL	Colgate-Palmolive	30	Consumer Staples	3030	Household & Personal Products	303010	Household Products	30301010	Household Products	
28 CSC	Computer Sciences Corp.	45	Information Technology	4510	Software & Services	451020	IT Consulting & Services	45102010	IT Consulting & Services	
29 DAL	Delta Air Lines	20	Industrials	2030	Transportation	203020	Airlines	20302010	Airlines	2
30 DOW	Dow Chemical	15	Materials	1510	Materials	151010	Chemicals	15101020	Diversified Chemicals	
31 DD	Du Pont (E.I.)	15	Materials	1510	Materials	151010	Chemicals	15101020	Diversified Chemicals	
32 EMC	EMC Corp.	45	Information Technology	4520	Technology Hardware & Equipment	452020	Computers & Peripherals	45202020	Computer Storage & Peripherals	
33 EK	Eastman Kodak	25	Consumer Discretionary	2520	Consumer Durables & Apparel	252020	Leisure Equipment & Products	25202020	Photographic Products	
34 EP	El Paso Corp.	55	Utilities	5510	Utilities	551020	Gas Utilities	55102010	Gas Utilities	
35 ETR	Entergy Corp.	55	Utilities	5510	Utilities	551010	Electric Utilities	55101010	Electric Utilities	10
36 EOC	Exelon Corp.	55	Utilities	5510	Utilities	551010	Electric Utilities	55101010	Electric Utilities	7
37 XOM	Exxon Mobil Corp.	10	Energy	1010	Energy	101020	Oil & Gas	10102010	Integrated Oil & Gas	1
38 FDX	Federal Express	20	Industrials	2030	Transportation	203010	Air Freight & Couriers	20301010	Air Freight & Couriers	
39 F	Ford Motor	25	Consumer Discretionary	2510	Automobiles & Components	251020	Automobiles	25102010	Automobile Manufacturers	
40 GD	General Dynamics	20	Industrials	2010	Capital Goods	201010	Aerospace & Defense	20101010	Aerospace & Defense	
41 GE	General Electric	20	Industrials	2010	Capital Goods	201060	Industrial Conglomerates	20106010	Industrial Conglomerates	
42 GM	General Motors	25	Consumer Discretionary	2510	Automobiles & Components	251020	Automobiles	25102010	Automobile Manufacturers	8
43 G	Gillette Co.	30	Consumer Staples	3030	Household & Personal Products	303020	Personal Products	30302010	Personal Products	
44 HCA	HCA Inc.	35	Health Care	3510	Health Care Equipment & Services	351020	Health Care Providers & Services	35102020	Health Care Facilities	
45 HAL	Halliburton Co.	10	Energy	1010	Energy	101010	Energy Equipment & Services	10101020	Oil & Gas Equipment & Services	
46 HET	Hamah's Entertainment	25	Consumer Discretionary	2530	Hotels Restaurants & Leisure	253010	Hotels Restaurants & Leisure	25301010	Casinos & Gaming	
47 HIG	Hartford Financial Svc. Gp.	40	Financials	4030	Insurance	403010	Insurance	40301030	Multi-Line Insurance	2
48 HNZ	Heinz (H.J.)	30	Consumer Staples	3020	Food Beverage & Tobacco	302020	Food Products	30202030	Packaged Foods	
49 HWP	Hewlett-Packard	45	Information Technology	4520	Technology Hardware & Equipment	452020	Computers & Peripherals	45202010	Computer Hardware	
50 HD	Home Depot	25	Consumer Discretionary	2550	Retailing	255040	Specialty Retail	25504030	Home Improvement Retail	

Sec9 FormB-K											
Ticker	Stock Name	Sector	Sector Name	Industry	Industry Group Name	Industry Code	Industry Name	Sub Ind Code	Sub Ind Name	Reporting	
51	INTC	Intel Corp.	45	Information Technology	4520	Technology Hardware & Equipment	452060	Semiconductor Equipment & Products	45206020	Semiconductors	
52	IBM	International Bus. Machines	45	Information Technology	4520	Technology Hardware & Equipment	452020	Computers & Peripherals	45202010	Computer Hardware	
53	IP	International Paper	15	Materials	1510	Materials	151060	Paper & Forest Products	15106020	Paper Products	1
54	IPG	Interpublic Group	25	Consumer Discretionary	2540	Media	254010	Media	25401010	Advertising	
55	JPM	J.P. Morgan Chase & Co.	40	Financials	4000	Diversified Financials	400010	Diversified Financials	40001020	Diversified Financial Services	2
56	JNJ	Johnson & Johnson	35	Health Care	3520	Pharmaceuticals & Biotechnology	352020	Pharmaceuticals	35202010	Pharmaceuticals	
57	LEH	Lehman Bros.	40	Financials	4000	Diversified Financials	400010	Diversified Financials	40001020	Diversified Financial Services	
58	LTD	Limited, The	25	Consumer Discretionary	2590	Retailing	259040	Specialty Retail	25904010	Apparel Retail	
59	LU	Lucent Technologies	45	Information Technology	4520	Technology Hardware & Equipment	452010	Communications Equipment	45201020	Telecommunications Equipment	10
60	MAY	May Dept. Stores	25	Consumer Discretionary	2590	Retailing	259030	Multiline Retail	25903010	Department Stores	
61	MCD	McDonald's Corp.	25	Consumer Discretionary	2530	Hotels Restaurants & Leisure	253010	Hotels Restaurants & Leisure	25301040	Restaurants	
62	MEDI	MedImmune Inc.	35	Health Care	3520	Pharmaceuticals & Biotechnology	352010	Biotechnology	35201010	Biotechnology	1
63	MDT	Medtronic Inc.	35	Health Care	3510	Health Care Equipment & Services	351010	Health Care Equipment & Supplies	35101010	Health Care Equipment	
64	MRK	Merck & Co.	35	Health Care	3520	Pharmaceuticals & Biotechnology	352020	Pharmaceuticals	35202010	Pharmaceuticals	10
65	MER	Merrill Lynch	40	Financials	4000	Diversified Financials	400010	Diversified Financials	40001020	Diversified Financial Services	7
66	MSFT	Microsoft Corp.	45	Information Technology	4510	Software & Services	451030	Software	45103020	Systems Software	
67	MMM	Minn. Mining & Mfg.	20	Industrials	2010	Capital Goods	201060	Industrial Conglomerates	20106010	Industrial Conglomerates	2
68	MWD	Morgan Stanley, Dean Witter	40	Financials	4000	Diversified Financials	400010	Diversified Financials	40001020	Diversified Financial Services	
69	NCTL	NorTel Communications	50	Telecommunication Services	5010	Telecommunication Services	501020	Wireless Telecommunication Services	50102010	Wireless Telecommunication Services	
70	NSM	National Semiconductor	45	Information Technology	4520	Technology Hardware & Equipment	452060	Semiconductor Equipment & Products	45206020	Semiconductors	
71	NSC	Norfolk Southern Corp.	20	Industrials	2030	Transportation	203040	Road & Rail	20304010	Railroads	
72	NT	NorTel Networks Corp Hldg Co.	45	Information Technology	4520	Technology Hardware & Equipment	452010	Communications Equipment	45201020	Telecommunications Equipment	
73	ORCL	Oracle Corp.	45	Information Technology	4510	Software & Services	451030	Software	45103020	Systems Software	
74	PEP	PepsiCo Inc.	30	Consumer Staples	3020	Food Beverage & Tobacco	302010	Beverages	30201030	Soft Drinks	3
75	PFE	Pfizer, Inc.	35	Health Care	3520	Pharmaceuticals & Biotechnology	352020	Pharmaceuticals	35202010	Pharmaceuticals	
76	PHA	Pharmacia Corp.	35	Health Care	3520	Pharmaceuticals & Biotechnology	352020	Pharmaceuticals	35202010	Pharmaceuticals	
77	MO	Philip Morris	30	Consumer Staples	3020	Food Beverage & Tobacco	302030	Tobacco	30203010	Tobacco	4
78	PG	Procter & Gamble	30	Consumer Staples	3030	Household & Personal Products	303010	Household Products	30301010	Household Products	
79	RSN	RadioShack Corp.	25	Consumer Discretionary	2590	Retailing	259040	Specialty Retail	25904020	Computer & Electronics Retail	1
80	RTN	Raytheon Co. (New)	20	Industrials	2010	Capital Goods	201010	Aerospace & Defense	20101010	Aerospace & Defense	1
81	ROK	Rockwell International	20	Industrials	2010	Capital Goods	201040	Electrical Equipment	20104010	Electrical Components & Equipment	
82	SLE	Sara Lee Corp.	30	Consumer Staples	3020	Food Beverage & Tobacco	302020	Food Products	30202030	Packaged Foods	
83	SBC	SBC Communications Inc.	50	Telecommunication Services	5010	Telecommunication Services	501010	Diversified Telecommunication Services	50101020	Integrated Telecommunication Services	
84	SLB	Schlumberger Ltd.	10	Energy	1010	Energy	101010	Energy Equipment & Services	10101020	Oil & Gas Equipment & Services	
85	S	Sears, Roebuck & Co.	25	Consumer Discretionary	2590	Retailing	259030	Multiline Retail	25903010	Department Stores	
86	SO	Southern Co.	55	Utilities	5510	Utilities	551010	Electric Utilities	55101010	Electric Utilities	5
87	TIN	Texas Instruments	45	Information Technology	4520	Technology Hardware & Equipment	452060	Semiconductor Equipment & Products	45206020	Semiconductors	5
88	TOY	Toys R Us Hldg. Cos.	25	Consumer Discretionary	2590	Retailing	259040	Specialty Retail	25904040	Specialty Stores	1
89	TYC	Tyco International	20	Industrials	2010	Capital Goods	201060	Industrial Conglomerates	20106010	Industrial Conglomerates	
90	USB	U.S. Bancorp.	40	Financials	4010	Banks	401010	Banks	40101010	Banks	
91	UIS	Unisys Corp.	45	Information Technology	4510	Software & Services	451020	IT Consulting & Services	45102010	IT Consulting & Services	
92	UTX	United Technologies	20	Industrials	2010	Capital Goods	201010	Aerospace & Defense	20101010	Aerospace & Defense	
93	VZ	Verizon Communications	50	Telecommunication Services	5010	Telecommunication Services	501010	Diversified Telecommunication Services	50101020	Integrated Telecommunication Services	
94	VIA.B	Viacom Inc.	25	Consumer Discretionary	2540	Media	254010	Media	25401030	Movies & Entertainment	
95	WMT	Wal-Mart Stores	25	Consumer Discretionary	2590	Retailing	259030	Multiline Retail	25903020	General Merchandise Stores	
96	DIS	Walt Disney Co.	25	Consumer Discretionary	2540	Media	254010	Media	25401030	Movies & Entertainment	1
97	WFC	Wells Fargo	40	Financials	4010	Banks	401010	Banks	40101010	Banks	
98	WY	Weyerhaeuser Corp.	15	Materials	1510	Materials	151060	Paper & Forest Products	15106010	Forest Products	
99	WMB	Williams Cos.	55	Utilities	5510	Utilities	551030	Multi-Utilities	55103010	Multi-Utilities	1
100	XXR	Xerox Corp.	45	Information Technology	4520	Technology Hardware & Equipment	452040	Office Electronics	45204010	Office Electronics	

Appendix II: List of ADRs active on NYSE/NASDAQ/AMEX for more than 20 mths									
and had a capital raising event of > \$250 mm									
Source: CITIBANK Capital Raising Events				http://www.citibank.com/adr/www/brokers/mn_uni.htm					
Issuer	Active	Country	Region	Sponsor	Structure	Exchange	Ticker	Cusip	MSCI Industry
1 Abbey National plc	A	U.K.	Western Europe	BoNY	ADR	NYSE	ANB_PA	002920700	Banking
2 ABN Amro Holding N.V.	A	Netherlands	Western Europe	Morgan	ADR	NYSE	ABN	000937102	Banking
3 Activcard S.A.	A	France	Western Europe	BoNY	ADR	NASDAQ	ACTI	00505N109	Data Processing & Reproduction
4 Allied Irish Banks, plc	A	Ireland	Western Europe	BoNY	ADR	NYSE	AIB	019228402	Banking
5 Ashanti Goldfields Company Limited	A	Ghana	Africa	BoNY	ADR	NYSE	ASL	043743202	Gold Mines
6 ASML Holding, NV	A	Netherlands	Western Europe	Morgan	ADR-NY Reg	NASDAQ	ASML	N07059111	Electronic Comp & Instruments
7 Australia & New Zealand Banking Group	A	Australia	Asia Developed	BoNY	ADR	NYSE	ANZ_P	052526601	Banking
8 Bookham Technology plc	A	U.K.	Western Europe	BoNY	ADR	NASDAQ	BKHM	08666Q108	Data Processing & Reproduction
9 British Sky Broadcasting Group plc	A	U.K.	Western Europe	Citibank	ADR	NYSE	BSY	111013108	Broadcasting & Publishing
10 Chartered Semiconductor Manufacturing	A	Singapore	Asia Developed	Citibank	ADR	NASDAQ	CHRT	16133R106	Machinery & Engineering
11 China Mobile (Hong Kong) Limited (form)	A	China	Asia Emerging	BoNY	ADR	NYSE	CHL	16941M109	Telecommunications
12 CNOOC Limited	A	Hong Kong	Asia Developed	Morgan	ADR	NYSE	CEO	126132109	Energy Sources
13 Companhia Paranaense de Energia (CPA)	A	Brazil	Latin America	BoNY	ADR	NYSE	ELP	20441B407	Utilities - Electrical & Gas
14 Compania Anonima Nacional Telefonos	A	Venezuela	Latin America	BoNY	ADR	NYSE	VNT	204421101	Telecommunications
15 Deutsche Telekom AG	A	Germany	Western Europe	Citibank	ADR	NYSE	DT	251566105	Telecommunications
16 Embraer-Empresa Brasileira de Aeronautica	A	Brazil	Latin America	Morgan	ADR	NYSE	ERJ	29081M102	Aerospace & Military Technology
17 Empresas ICA - Sociedad Controladora	A	Mexico	Latin America	BoNY	ADR	NYSE	ICA	292448107	Construction & Housing
18 Endesa S.A.	A	Spain	Western Europe	Citibank	ADR	NYSE	ELE	29258N107	Utilities - Electrical & Gas
19 Enersys plc	A	U.K.	Western Europe	BoNY	ADR	NASDAQ	ENGSY	29266H100	Telecommunications
20 Eni S.p.A.	A	Italy	Western Europe	Morgan	ADR	NYSE	E	26874R108	Energy Sources
21 EPCOS AG	A	Germany	Western Europe	Morgan	ADR	NYSE	EPC	29410P107	Electronic Comp & Instruments
22 Equant N.V.	A	Netherlands	Western Europe	Morgan	ADR-NY Reg	NYSE	ENT	294409107	Business & Public Services
23 France Telecom	A	France	Western Europe	BoNY	ADR	NYSE	FTE	35177Q105	Telecommunications
24 GlaxoSmithKline plc	A	U.K.	Western Europe	BoNY	ADR	NYSE	GSK	37733W105	Health & Personal Care
25 Grupo Televisa, S.A. de C.A.	A	Mexico	Latin America	Citibank	GOR	NYSE	TV	40049J206	Broadcasting & Publishing
26 Guangshen Railway Company Limited	A	China	Asia Emerging	Morgan	ADR	NYSE	GSH	40065W107	Transportation - Road & Rail
27 Gucci Group N.V.	A	Netherlands	Western Europe	BoNY	ADR-NY Reg	NYSE	GUC	401566104	Recreation, Other Consumer Goods
28 Hanaro Telecom	A	Korea	Asia Emerging	Deutsche	ADR	NASDAQ	HANA	409649209	Telecommunications
29 Hellenic Telecommunications Organization	A	Greece	Western Europe	BoNY	ADR	NYSE	OTE	423325307	Telecommunications
30 Huaneng Power International, Inc.	A	China	Asia Emerging	Morgan	ADR	NYSE	HNP	443304100	Energy Sources
31 Infineon Technologies AG	A	Germany	Western Europe	Morgan	ADR	NYSE	IFX	45662N103	Electrical & Electronics
32 ING Groep N.V.	A	Netherlands	Western Europe	Morgan	ADR	NYSE	ING	456837103	Financial Services
33 Ispat International, N.V.	A	Netherlands	Western Europe	BoNY	ADR-NY Reg	NYSE	IST	464899103	Metals - Steel
34 Korea Electric Power Corporation (KEPCO)	A	Korea	Asia Emerging	BoNY	ADR	NYSE	KEP	500631106	Utilities - Electrical & Gas
35 Korea Telecom Corporation	A	Korea	Asia Emerging	Citibank	ADR	NYSE	KTC	50063P103	Telecommunications
36 KPNQwest N.V.	A	Netherlands	Western Europe	BoNY	ADR	NASDAQ	KQIP	N50919104	Telecommunications
37 Magyar Telekom Rt. (MATAV Rt.)	A	Hungary	Eastern Europe	Morgan	ADR	NYSE	MTA	559776109	Telecommunications
38 National Australia Bank Limited	A	Australia	Asia Developed	BoNY	ADR	NYSE	NAB	632525119	Banking
39 National Westminster Bank	A	U.K.	Western Europe	Morgan	ADR	NYSE	NWPRC	636539682	Banking
40 News Corporation Limited, The	A	Australia	Asia Developed	Citibank	ADR	NYSE	NWSA	652487802	Broadcasting & Publishing
41 Nippon Telegraph and Telephone Corp.	A	Japan	Asia Developed	Morgan	ADR	NYSE	NTT	654624105	Telecommunications
42 Nokia Corporation	A	Finland	Western Europe	Citibank	ADR	NYSE	NOK	654902204	Telecommunications
43 P.T. Indonesian Satellite Corporation (PTISAT)	A	Indonesia	Asia Emerging	BoNY	ADR	NYSE	IT	715680104	Telecommunications
44 Partner Communications Company Ltd.	A	Israel	Eastern Europe	Morgan	ADR	NASDAQ	PTNR	70211M109	Telecommunications
45 Petrochina Co. Ltd.	A	China	Asia Emerging	BoNY	ADR	NYSE	PTR	71646E100	Energy Sources
46 Philippine Long Distance Telephone (PLDT)	A	Philippines	Asia Emerging	Citibank	GOR	NYSE	PHIPRA	718252703	Telecommunications
47 Pohang Iron & Steel Co., Ltd. (POSCO)	A	Korea	Asia Emerging	BoNY	ADR	NYSE	PKX	730450103	Metals - Steel
48 Repsol YPF, S.A.	A	Spain	Western Europe	BoNY	ADR	NYSE	REP	760267205	Energy Sources
49 Royal Bank of Scotland	A	U.K.	Western Europe	BoNY	ADR	NYSE	RBSRF	780097804	Banking
50 Royal KPN N.V. (formerly Royal PTT N.V.)	A	Netherlands	Western Europe	Citibank	ADR	NYSE	KPN	780641205	Telecommunications
51 Sero S.A.	A	Switzerland	Western Europe	BoNY	ADR	NYSE	SRA	81752M101	Health & Personal Care
52 Societe Commerciale de Reassurance	A	France	Western Europe	BoNY	ADR	NYSE	SCO	80917Q105	Insurance
53 ST Assembly Test Services Ltd. (STAT)	A	Singapore	Asia Developed	Citibank	ADR	NASDAQ	STTS	85227G102	Electronic Comp & Instruments
54 STET Hellas Telecommunications S.A.	A	Greece	Western Europe	BoNY	ADR	NASDAQ	STHY	859823106	Telecommunications
55 STMicroelectronics N.V.	A	France	Western Europe	BoNY	ADR	NYSE	STM	861012102	Electrical & Electronics
56 Swisscom AG	A	Switzerland	Western Europe	BoNY	ADR	NYSE	SCM	871013108	Telecommunications
57 Taiwan Semiconductor Manufacturing Co.	A	Taiwan	Asia Emerging	Citibank	ADR	NYSE	TSM	874039100	Electrical & Electronics
58 Tele Danmark A/S	A	Denmark	Western Europe	BoNY	ADR	NYSE	TLD	879242105	Telecommunications
59 Telecom Argentina STET - France Telecom	A	Argentina	Latin America	Morgan	ADR	NYSE	TEO	879273209	Telecommunications
60 Telecom Italia S.p.A.	A	Italy	Western Europe	Morgan	ADR	NYSE	TIA	859825705	Telecommunications
61 Telefonica de Argentina S.A.	A	Argentina	Latin America	Citibank	GOR	NYSE	TAR	879378206	Telecommunications
62 Telefonica del Peru S.A.	A	Peru	Latin America	Morgan	ADR	NYSE	TDP	879384105	Telecommunications
63 Telefonica S.A. (Formerly Telefonica de Espana)	A	Spain	Western Europe	Citibank	ADR	NYSE	TEF	879382208	Telecommunications
64 Telefonos de Mexico S.A. de C.V.	A	Mexico	Latin America	Morgan	ADR	NYSE	TMX	879403780	Telecommunications
65 Telewest Communications plc	A	U.K.	Western Europe	BoNY	ADR	NASDAQ	TWSTY	87956P105	Telecommunications
66 Total Fina Elf S.A.	A	France	Western Europe	BoNY	ADR	NYSE	TOT	89151E109	Energy Sources
67 Transportadora de Gas del Sur, S.A. (TGS)	A	Argentina	Latin America	Citibank	ADR	NYSE	TGS	893870204	Utilities - Electrical & Gas
68 TV Azteca, S.A. de C.V.	A	Mexico	Latin America	BoNY	ADR	NYSE	TZA	901145102	Broadcasting & Publishing
69 Unibanco - Uniao de Bancos Brasileiros	A	Brazil	Latin America	BoNY	ADR	NYSE	UBB	90458E107	Banking
70 YPF Sociedad Anonima	A	Argentina	Latin America	BoNY	ADR	NYSE	YPF	984245100	Energy Sources

Appendix III: Excess Returns on ADR stocks.

Issuer	Ticker	Event I	Event II
1 Abbey National plc	ANB_PA	0.18%	2.51%
2 ABN Amro Holding N.V.	ABN	6.50%	5.88%
3 Activcard S.A.	ACTI	-2.26%	-12.59%
4 Allied Irish Banks, plc	AIB	1.12%	0.81%
5 Ashanti Goldfields Company Limited	ASL	17.32%	-24.14%
6 ASML Holding, NV	ASML	-5.83%	-0.55%
7 Australia & New Zealand Banking Group	ANZ_P	0.01%	1.65%
8 Bookham Technology plc	BKHM	12.10%	-6.09%
9 British Sky Broadcasting Group plc	BSY	-20.41%	19.16%
10 Chartered Semiconductor Manufacturing Ltd.	CHRT	-0.80%	0.39%
11 China Mobile (Hong Kong) Limited (formerly China Telecom)	CHL	-20.40%	-0.54%
12 CNOOC Limited	CEO	-7.91%	-7.20%
13 Companhia Paranaense de Energia (COPEL)	ELP	-6.07%	4.94%
14 Compania Anonima Nacional Telefonos de Venezuela (CANTV)	VNT	-10.22%	-4.17%
15 Deutsche Telekom AG	DT	-9.31%	-2.70%
16 Embraer-Empresa Brasileira de Aeronautica S.A.	ERJ	-56.49%	3.65%
17 Empresas ICA - Sociedad Controladora, S.A. de C.V.	ICA	-3.07%	-13.81%
18 Endesa S.A.	ELE	1.37%	-4.05%
19 Energis plc	ENGSY	-12.50%	-8.06%
20 Eni S.p.A.	E	-5.83%	-3.95%
21 EPCOS AG	EPC	-20.79%	6.64%
22 Equant N.V.	ENT	9.99%	-18.02%
23 France Telecom	FTE	-24.35%	-0.63%
24 GlaxoSmithKline plc	GSK	-0.20%	3.27%
25 Grupo Televisa, S.A. de C.A.	TV	6.90%	-1.19%
26 Guangshen Railway Company Limited	GSH	12.72%	-7.39%
27 Gucci Group N.V.	GUC	4.22%	5.14%
28 Hanaro Telecom	HANA	-10.96%	-5.27%
29 Hellenic Telecommunications Organization S.A. (OTE)	OTE	-2.78%	-1.11%
30 Huaneng Power International, Inc.	HNP	0.29%	16.62%
31 Infineon Technologies AG	IFX	-7.02%	-5.01%
32 ING Groep N.V.	ING	-1.31%	-0.60%
33 Ispat International, N.V.	IST	-5.56%	-9.43%
34 Korea Electric Power Corporation (KEPCO)	KEP	0.67%	-2.07%
35 Korea Telecom Corporation	KTC	-4.11%	-2.25%
36 KPNQwest N.V.	KQIP	42.47%	32.38%
37 Magyar Tavkozlesi Rt. (MATAV Rt.)	MTA	-3.78%	-3.83%
38 National Australia Bank Limited	NAB	7.00%	1.12%
39 National Westminster Bank	NWPRC	-0.63%	-0.39%
40 News Corporation Limited, The	NWSA	-6.35%	7.95%
41 Nippon Telegraph and Telephone Corporation, NTT	NTT	-3.42%	1.92%
42 Nokia Corporation	NOK	14.34%	-20.91%
43 P.T. Indonesian Satellite Corporation (Indosat)	IIT	2.24%	-3.56%

44 Partner Communications Company Ltd.	PTNR	0.10%	19.12%
45 Petrochina Co. Ltd.	PTR	-5.49%	-4.88%
46 Philippine Long Distance Telephone (PLDT)	PHIPRA	-8.04%	5.68%
47 Pohang Iron & Steel Co., Ltd. (POSCO)	PKX	1.23%	12.03%
48 Repsol YPF, S.A.	REP	6.64%	0.56%
49 Royal Bank of Scotland	RBSPRF	-0.16%	-1.14%
50 Royal KPN N.V. (formerly Royal PTT Nederland NV)	KPN	-21.76%	3.71%
51 Serono S.A.	SRA	1.84%	-5.22%
52 Societe Commerciale de Reassurance (SCOR)	SCO	-33.55%	-9.58%
53 ST Assembly Test Services Ltd. (STATS)	STTS	-19.84%	-12.40%
54 STET Hellas Telecommunications S.A. (STHLY	9.07%	-7.24%
55 STMicroelectronics N.V.	STM	-12.97%	-14.21%
56 Swisscom AG	SCM	-1.29%	9.44%
57 Taiwan Semiconductor Manufacturing Company Ltd.	TSM	28.17%	22.79%
58 Tele Danmark A/S	TLD	6.69%	-10.67%
59 Telecom Argentina STET - France Telecom S.A.	TEO	8.38%	6.22%
60 Telecom Italia S.p.A.	TIA	0.62%	4.40%
61 Telefonica de Argentina S.A.	TAR	-40.91%	0.79%
62 Telefonica del Peru S.A.	TDP	9.05%	-3.30%
63 Telefonica S.A. (Formerly Telefonica de Espana)	TEF	4.68%	7.39%
64 Telefonos de Mexico S.A. de C.V.	TMX	1.45%	-12.84%
65 Telewest Communications plc	TWSTY	18.37%	-15.68%
66 Total Fina Elf S.A.	TOT	-7.87%	-0.69%
67 Transportadora de Gas del Sur, S.A. (TGS)	TGS	-2.35%	10.91%
68 TV Azteca, S.A. de C.V.	TZA	1.09%	6.28%
69 Unibanco - Uniao de Bancos Brasileiros S.A.	UBB	-27.09%	6.13%
70 YPF Sociedad Anonima	YPF	-1.06%	0.12%

Appendix IV

Test for Equal Variances – Raw Data

Level1 event 1
Level2 event 2
ConfLvl 95.0000

Bonferroni confidence intervals for standard deviations

Lower	Sigma	Upper	N	Factor Levels
0.121297	0.144532	0.178207	70	event 1
0.082125	0.097856	0.120656	70	event 2

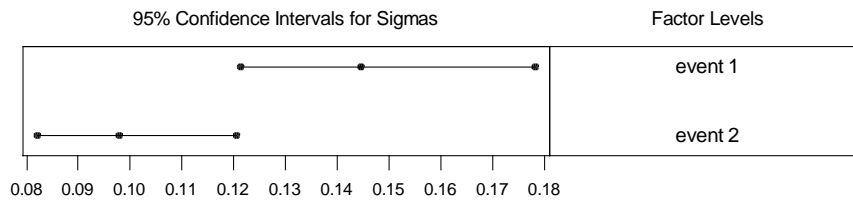
F-Test (normal distribution)

Test Statistic: 2.181
P-Value : 0.001

Levene's Test (any continuous distribution)

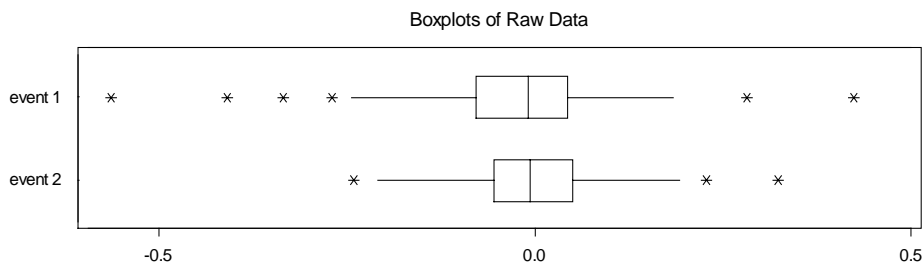
Test Statistic: 2.647
P-Value : 0.106

test for change in variance



F-Test
Test Statistic: 2.181
P-Value : 0.001

Levene's Test
Test Statistic: 2.647
P-Value : 0.106



Test for Equal Variances – Adjusted Data – Outliers removed

Level1 event 1
Level2 event 2
ConfLvl 95.0000

Bonferroni confidence intervals for standard deviations

Lower	Sigma	Upper	N	Factor Levels
6.01E-02	7.27E-02	0.091762	58	event 1
6.69E-02	8.10E-02	0.102257	58	event 2

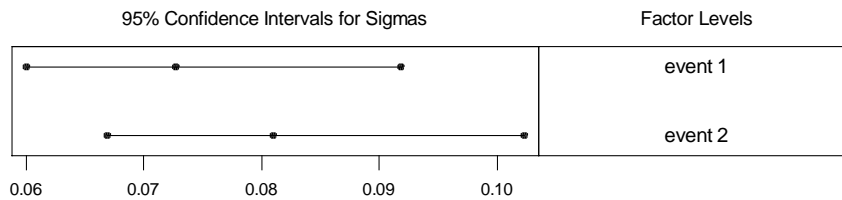
F-Test (normal distribution)

Test Statistic: 0.805
P-Value : 0.416

Levene's Test (any continuous distribution)

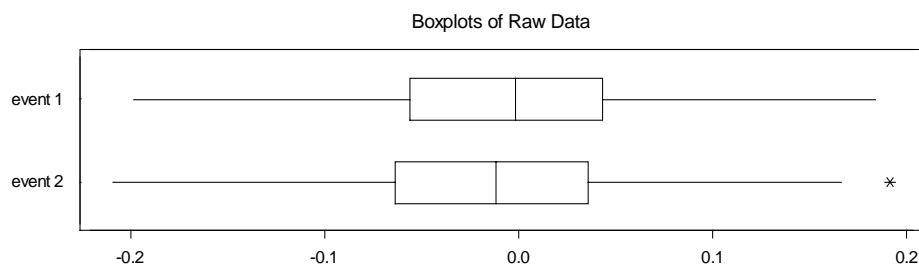
Test Statistic: 0.565
P-Value : 0.454

test for change in variance



F-Test
Test Statistic: 0.805
P-Value : 0.416

Levene's Test
Test Statistic: 0.565
P-Value : 0.454



Appendix V

Paired T-Test and CI: event 1, event 2

Paired T for event 1 - event 2

	N	Mean	StDev	SE Mean
event 1	58	-0.0035	0.0727	0.0095
event 2	58	-0.0169	0.0810	0.0106
Difference	58	0.0134	0.1122	0.0147

95% CI for mean difference: (-0.0161, 0.0429)

T-Test of mean difference = 0 (vs not = 0): T-Value = 0.91 P-Value = 0.365

Boxplot of Differences

(with Ho and 95% t-confidence interval for the mean)

